1. 測試內容：

測試 Meter table 之 Meter type “REMARK” 是否正確執行。

1. 測試環境架構：



1. 測試環境組態：

* SDN controller: ONOS 1.15.0
* Switch: DGS-3630
* Hosts:
  + ubuntu 16.04.5 LTS
  + dlinktest1(實體機)
    - IP: 192.168.202.1
    - MAC: d0:94:66:5d:5e:08/64
    - Port: 1
  + dlinktest2(實體機)
    - IP: 192.168.202.2
    - MAC: d0:94:66:5c:45:20/64
    - Port: 2
* Apps:



1. 使用之JSON文件：
   * Flow Rule: (附檔：bandRemarkFlow.json)

|  |
| --- |
| {  "flows": [  {  "priority": 100,  "timeout": 0,  "isPermanent": true,  "deviceId": "of:000078321bdf4000",  "treatment": {  "instructions": [  {  "type": "OUTPUT",  "port": "1"  }  ]  },  "selector": {  "criteria": [  {  "type": "IN\_PORT",  "port": "2"  }  ]  }  },  {  "priority": 101,  "timeout": 0,  "isPermanent": true,  "deviceId": "of:000078321bdf4000",  "treatment": {  "instructions": [  {  "type": "METER",  "meterId": 1  },  {  "type": "OUTPUT",  "port": "2"  }  ]  },  "selector": {  "criteria": [  {  "type": "IN\_PORT",  "port": "1"  }  ]  }  }    ]  } |

* + Meter Rule: (附檔：bandRemark.json)

|  |
| --- |
| {  "deviceId": "of:000078321bdf4000",  "id": 1,  "unit": "KB\_PER\_SEC",  "burst": true,  "bands": [  {  "type": "REMARK",  "rate": "10240",  "burstSize": "10240",  "prec": "0"  }  ]  } |

1. 測試步驟：
2. ONOS GUI:

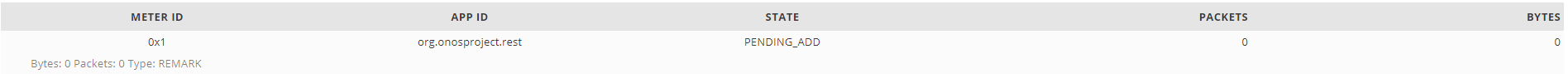
* Flow View

Flow Entry which output to meter table is “Pending Add”:



* Meter View

Meter Entry as id=0x1 showed the state is “PENDING\_ADD”:



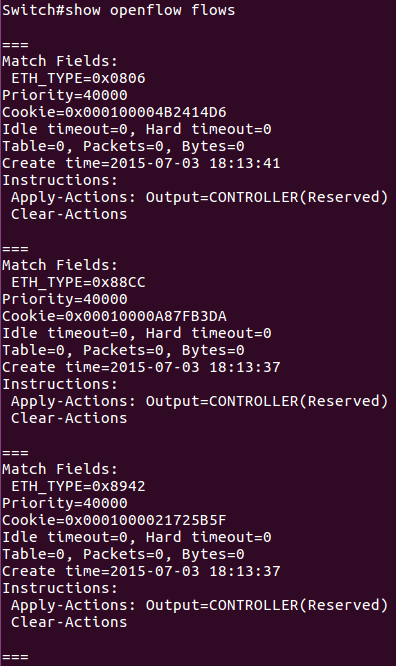
1. Switch CLI:

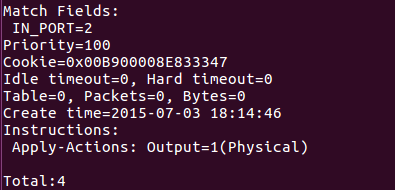
|  |
| --- |
| Switch# show openflow meter-config |



|  |
| --- |
| Switch# show openflow flows |

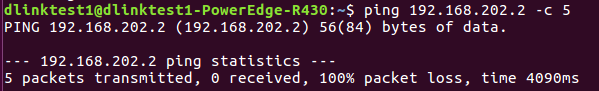
The flow which output to the entry with meter band as “REMARK” did not show in switch CLI.





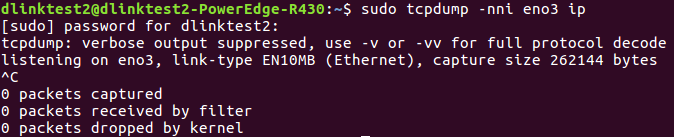
1. Monitor: using ping tool

|  |
| --- |
| dlinktest1@140.113.131.146: $ ping 192.168.202.2 –c 5 |



上圖可以看出dlinktest1與dlinktest2無法ping通。

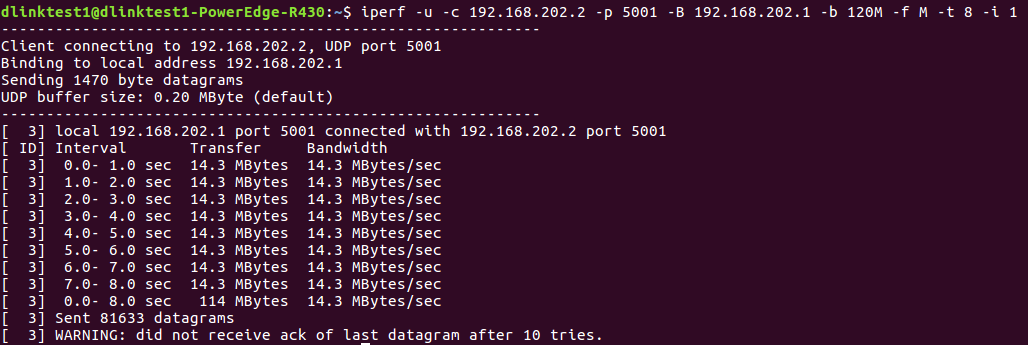
|  |
| --- |
| dlinktest2@140.113.131.147: $ sudo tcpdump –nni eno3 ip |



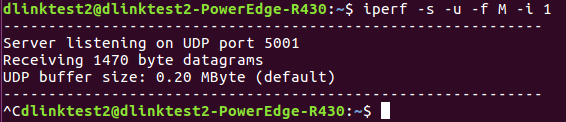
上圖可以看出dlinktest2的network interface eno3沒有收到封包。

1. Monitor: Using iperf tool
   1. Let h1 be udp client, sending 120Mbits UDP traffic to h2, which is a udp server.

|  |
| --- |
| dlinktest1@140.113.131.146: $ iperf -u -c 192.168.202.2 -p 5001 -B 192.168.202.1 -b 120M -f M -t 8 -i 1 |



|  |
| --- |
| dlinktest2@140.113.131.147: $ iperf -s -u -f M -i 1 |



上圖可以看出dlinktest2沒有收到udp的封包。

1. 測試結果：

Meter table之Meter type“REMARK”無法正確執行。